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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,995	11/19/2003	Steve Heckeroth	2093	7604

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ENERGY CONVERSION DEVICES, INC.
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EXAMINER	
TRINH, THANH TRUC	
ART UNIT	**PAPER NUMBER**
1753	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/716,995	HECKEROTH, STEVE	
	Examiner	Art Unit	
	Thanh-Truc Trinh	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) *26-31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/21/2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference sign 36 which appears on page 10 line 11; reference 38 which appears on page 10 line 21; references A-A and C-C which appear on page 10 lines 29-31; references 900, 901b, 902b which appear on page 13 lines 5-28; reference FIG. 3E which appears on page 6 lines 4 and page 10 lines 14-19. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

Page 5, lines 28-30 and Page 9, lines 27-29, the disclosure refers to FIG. 3C to depict a plurality of clamping strips, however FIG. 3C in the drawings shows only a cross sectional view of a batten cap, a clamping strip maintaining contact with the sides of a substantially triangular shape.

Page 6, lines 1-3, in referring to FIG. 3D, the disclosure is inconsistent with the drawings. FIG. 3D shows a surface with a plurality of batten caps, while the brief description of FIG. 3D describes cross sectional view of a batten cap, a clamping strip maintaining contact with the sides of the substantially triangular shape.

Page 9, line 31, "batten cap 30" should be -- batten cap 34--.

Page 10, line 2, "batten cap 30" should be – batten cap 34 --.

Appropriate correction is required.

Claim Objections

3. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 22-27 have been renumbered 26-31.

The effective numbers are used below.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 12, it is not clear that "said first side" and "said second side" referred to sides of what part of the invention, the sides of the substantially triangular shape or the sides of the batten cap.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 10-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Knudson (US Patent 4546586).

See Figures 1-7.

Regarding claims 1, Knudson teaches providing a first (11 or 211 or 311) and a second (12 or 212 or 312) elongated web (or sheet) of metal (See col. 2 lines 18-19); disposing the first and second webs on the surface in a longitudinally aligned relationship with one another, wherein a first edge of the first web abuts a first edge of second web to form a longitudinal engagement point (or seam 13); securing at least one clamping strip (or fastening device 37) onto the longitudinal engagement point, each of the clamping strips adapted to secure the longitudinal engagement point in a stable position; securing at least one batten cap 38 onto each of the clamping strips, each of the batten caps adapted to secure each of the clamping strips. (See Figures 1-2). The sheets of metal are subject to bend and turn (See col. 2 lines 38-49), therefore they are considered a flexible material. Since Knudson teaches the limitations of the instant claim, the prior art is deemed to be anticipatory.

Regarding claim 3, Knudson teaches securing at least one clamping onto the longitudinal engagement point. (See Figures 1, 4)

Regarding claims 10, Knudson teaches the longitudinal engagement point forming a substantially triangular shape having the surface as a base, the first edge of the first web as a first side, and the first edge of the second web as a second side. (See Figures 2, 4, 6-7)

Regarding claim 11, Knudson describes the batten cap having a first side and a second side. The first side of the batten cap has an inwardly curled end, and the second side of the batten cap also has an inwardly curled end. (See Figures 1, 4 or col. 4 lines 39-41).

Regarding claim 12, Knudson describes the first side has a first arced shape and the second side has a second arced shape. (See Figure 1, 4)

Regarding claims 13-14, Knudson teaches the inwardly curled ends of the batten cap retain in grooves (59, 62) created between surface portions (58, 61) of the leg of the clamping strip and the sides (11, 12) of the metal sheets (See Figures 3 and 4). Therefore the curled ends of the batten cap inherently maintain contact with the sides of the substantially triangular shape.

Regarding claims 15-16, Knudson teaches the inwardly curled ends of the batten retain in the grooves (589, 62) created between surface portions (58, 61) of the leg of the clamping strip and the sides (11, 12) of the metal sheets. (See Figures 3 and 4). In this position, the batten cap 38 creates a force to hold down the clamping strip (or fastening device 37, see col. 4 lines 39-46), and it inherently creates a force to press down the sides (11, 12) of the substantially triangular shape, thereby providing a securing means of attaching the sides of the substantially triangular shape onto the surface of the roof.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2, 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knudson (US Patent 4556586) in view of Nath et al. (US Patent 5092939).

Regarding claim 2, Knudson teaches mounting a flexible material onto a surface as described in claim 1. Knudson also teaches the surface can be roof deck (See col. 2 line 21).

Knudson does not teach using flexible material of a photovoltaic material,

Nath et al. teach using a photovoltaic material 44 as the flexible material. (See col. 1 lines 50-56)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a photovoltaic material as taught by Nath et al., because it would be economical and cost-effective. (See col. 1 lines 50-56)

Regarding claims 6-9, Knudson teaches mounting a flexible material onto a roof deck surface as described in claim 1.

Knudson does not teach establishing electrical communication in a region of a soffit of the roof, in a region of a ridge of the roof and proximate a transverse extending edge of each of the webs of photovoltaic material.

Nath et al. also teach establishing electrical communication in a region of a soffit of the roof, in a region of a ridge of the roof and approximate a transverse extending edge of each of the webs of photovoltaic material (See Figures 4, 8, col. 2 lines 14-20, col. 3 lines 38-42, col. 4 lines 31-42 and col. 5 lines 18-41)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Nath et al. for establishing electrical communication, because it would provide an electrical output from the photovoltaic material. (See col. 2 lines 14-15).

6. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knudson in view of Nath et al and further in view of Francovitch (US Patent 4674244).

Knudson and Nath et al teach mounting flexible photovoltaic material as described in claim 2.

Neither Knudson nor Nath et al teach disposing a membrane material onto the roof deck prior to disposing the flexible webs, nor do they teach applying a sheet of membrane material upon the roof and over which are disposed the webs of photovoltaic material.

Francovitch teaches disposing a membrane material onto the roof deck prior to disposing the flexible webs, and applying a sheet of membrane material upon the roof and over which are disposed the webs of photovoltaic material. (See '244 col. 3 lines 25-40)

It would have been obvious to one having ordinary skill at the time the invention was made to modify the method of Knudson and Nath et al. by applying membrane material prior to disposing the photovoltaic material as taught by Francovitch, because it would provide an economical and effective roof and photocell construction. (See col. 2 lines 45-54)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nath et al. (US Patent 5092939) in view of Knudson (US 4546586).

Regarding claims 17, 20-21, Nath et al. disclose a system for securing photovoltaic material onto a surface comprising flexible webs (panels 14 or 16) of photovoltaic material, wherein the first and second webs set onto the surface in a longitudinally aligned relationship with one another; at least one clamping strip (or clip 26) clamped onto the longitudinal engagement point, each of the clamping strips adapted to secure the longitudinal engagement point; at least one batten cap 32 clamped onto clamping strips, each of the batten caps adapted to secure each of the clamping strips. (See Figures 2-3 or col. 3 lines 10-37).

Nath et al. do not teach abutting the edges of the webs, nor do they teach the material of the clamping strips and the batten cap.

Knudson teaches the edge of the first web abutting the edge of the second web to form a longitudinal engagement point. (See Figures 2, 4, 6-7).

Knudson also teaches the clamping strips being fabricated from nylons (See col. 4 lines 25-38), and batten cap from sheet metal (See col. 4 lines 39-41), which obviously includes aluminum, iron, steel, or stainless steel.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the module of Nath et al. by having the edges of the web abutting each other as taught by Knudson, because it would connect the web together as a unitary and form a weather-tight continuous seam. (See col. 2 lines 48-49).

Regarding claim 18, Nath et al teach the web having a generally central photovoltaic area encapsulated within a polymeric material, wherein the polymeric material having both side and extending edges beyond the photovoltaic area. See col. 4 lines 60-66). A pair of contact terminals extends from a selected end of the flexible web and establishes electrical communication with the photovoltaic area. (See Figure 4)

Regarding claim 19, Nath et al. disclose that the longitudinal engagement point forming a substantially triangular shape having the surface 30 as a base, the edge of the web as a first side and the edge of the second web as a second side. (See Figure 3). In addition, when two flexible panels are bent and joined at bending site, it always creates a triangular-like shape.

Regarding claim 22, Nath et al. describe the photovoltaic material being laminated between two wider layers, EVA 62 and galvanized steel 36, to form side

edges 84 and cutting areas 86. (See Figures 6, 8 and col. 4 lines 51-66). The side edges and the cutting areas do not contain the photovoltaic material, therefore they are thinner than the middle portion of the photovoltaic web. In other words, the photovoltaic web maintains a uniform thickness throughout cross section, and tapers to a thinner thickness at the edges and sides.

Regarding claim 23, Nath et al. disclose the batten cap 32 having a first side and the second side, wherein the sides having inwardly curled ends. (See Figure 3).

Regarding claim 24, Nath et al. disclose the sides of batten cap 32 having arced shape. (See Figure 3).

Regarding claim 25, Nath et al. disclose the inwardly curled ends of the batten cap 32 maintain contact with the sides of the substantially triangular shape. (See Figure 3).

Regarding claims 26-27, Nath et al disclose the means for securing the sides of the substantially triangular shape to the roof surface by using clip 26 and screw 28. (See Figure 3)

10. Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nath et al in view of Knudson, and further in view of Heath (US Patent 3992847).

Regarding claims 28-31, Nath et al. and Knudson teach securing system as described in claim 17. Nath et al. also teach using a spool (or coil 82) of photovoltaic material.

Neither Nath et al. nor Knudson teach using a ridge roller comprising sets of legs or wheels which are adapted to run along rails. Nor do they teach including a cradle adapted to rotatably support the spool.

Heath teaches using ridge roller rotatably securing a spool (or combination of a roller 60 and a roll 75) of flexible sheet material such as insulation and facilitating the drawing and sectioning of discrete lengths of the flexible material. (See '847 Figure 1, col. 3 lines 26-69)

Heath discloses the ridge roller comprising a first set of legs (27 and 35) adapted to run along a first rail (track 97 or a purlin); a second set of legs (28 and 36) adapted to run along a second rail (track 96 or an adjacent purlin of that of the first set of legs), wherein the second rail approximately parallel to the first rail (See '847 Figures 3); and a cradle (or frame 10) adapted to rotatably support the pool. (See '847 Figures 1, 3 or col. 2 lines 36-68 and col. 4 lines 16-37).

Heath also discloses the ridge roller comprising a first sliding panel (track 97 or a purlin) having a first set of wheels (42, 44); a second sliding panel (track 96 or an adjacent purlin of that of the first purlin) having a second set of wheels (43, 45); a first locking means (51, 53) to lock first sliding panel into a desired position; a second locking means (51, 53) to lock the second sliding panel into a desired position. The first set of wheels adapted to run along a first rail, and the second set of wheels adapted to

run along a second rail, wherein the second rail is approximately parallel to the first rail. (See '847 Figure 1, 3, and col. 4 lines 16-37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Nath et al and Knudson by using a roller ridge as taught by Heath, because it would provide safe, economical and reliable methods of roofing. (See '847 col. 5 lines 4-6).

In addition, it would certainly have been obvious to one having ordinary skill in the art at the time the invention was made to have used a spool of photovoltaic material as taught by Nath et al. in place of the insulation roll as taught by Heath. Both the spool of photovoltaic material and the insulation roll are flexible material and able to form a roll or a spool, therefore they are functionally equivalent. Thus, the arts to which the reference patent belonged were reasonably pertinent to the art with which the applicant's invention dealt. See MPEP § 2141.01(a).

Double Patenting

Claims 1-31 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6730841 in view of Knudson. The subject matters of the claims of US Patent 6730841 are substantially the same as that of the instant claims, except for the manner in which adjacent panels are joined. US Patent 6730841 overlaps the sheets. Knudson teaches joining the ends by abutting adjacent sheets, clamping them together, and providing a batten cap, as

instantly claimed. It would have been obvious to one having ordinary skill in the art to modify the method and product of claims 1-17 of US Patent 6730841 by joining the sheets as taught by Knudson because it fully cover and weatherproof the seam. (See col. 1 lines 30-31).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh-Truc Trinh whose telephone number is 571-272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT
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